The fluid in all cases was sterile, the albumin and number of leucocytes were not materially increased. In three cases in which the blood serum caused agglutination, in one case up to 1:500, the spinal fluid did not share this quality. (The author promises a further report showing that the cerebrospinal fluid does not possess the bactericidal action of blood serum.) Brain symptoms in typhoid fever might be explained in three different ways: In the first place by a purulent meningitis with typhoid fever in the exudate; second, by direct toxic action; and third, perhaps through the action of toxines, by an intrameningeal exudation. The latter explanation is adduced by the author in his own cases, in which the cerebral symptoms were merely such as may be observed in a moderately severe case in which the diagnosis of meningotyphoid could not be made. The author also believes, however, that an acute serous meningitis is very common in typhoid fever, and he explains by this one of the most striking signs of the disease: the relative infrequence of the pulse. In all the author's cases puncture was followed by subsidence of headache, which, in some of the cases, was permanent.

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**Acute Leukæmia in Childhood, with Report of a Case.**—McCrae (*Johns Hopkins Hospital Bulletin*, May, 1900, p. 102) reports an interesting case of acute leukæmia in a child, the history of which is summarized as follows: "Male, aged three years; anæmia; fever; purpuric rash; blood picture of leukæmia; hemorrhages; convulsions; death; duration about one month."

The child was admitted to the Johns Hopkins Hospital on May 11, 1898. He had been fretful for a few days previous to admission. It was found that he had adenoids and enlarged tonsils. The liver was palpable 3 cm. below the costal margin. The spleen was palpable and hard, but did not extend below the costal margin. There was no general glandular enlargement. Over the sacrum there was an extensive purpuric, almost gangrenous, area. The blood examination on May 12th gave the following: Red cells, 1,680,000; leucocytes, 26,000, and hæmoglobin, 35 per cent. (v. Fleischl). A differential count of the leucocytes showed 86.5 per cent. of lymphocytes (small, 41.5; large, 45 per cent.). On May 24th, the day the child was removed from the hospital, the blood examination showed the following: Leucocytes, 21,800 per c.mm., with 98.6 per cent. of large and small lymphocytes. On May 19th the leucocytes had been 60,800 per c.mm., with 99.2 per cent. of lymphocytes. The child died on May 30th, six days after removal from the hospital. Death was preceded by epistaxis, petechiæ, and convulsions.

According to McCrae, acute leukæmia is a rare disease in the first decade, but a search of the literature shows that there are at least thirteen previously reported cases of acute leukæmia in this period of life.

Of these 13 cases 11 were in males. Fever was noted in 8 cases; general glandular enlargement was present in 4 cases, enlarged cervical glands only in 5 cases, no enlargement in 2, and no note regarding it in 2. The spleen was enlarged in all the cases. There was enlargement of the liver in 8 cases, none in 3, and in 2 the condition was not noted.

The red cells were reduced in the eight cases in which there was a record of a count being made. They ranged between 2,350,000, the highest, and 1,000,000, the lowest.

The leucocytes showed wide variation. There were counts in eight cases, the highest being 209,000 and the lowest 21,000 (McCrae's case).

The type of leukæmia was apparently lymphatic in thirteen cases, and in the remaining case no note regarding the blood is given.

As to diagnosis the disease can be recognized only by careful blood-examination. The conditions with which it is most likely to be confounded are: (1) An acute infection with specially marked throat symptoms, and (2) a hemorrhagic purpura. A possible relationship to lymphatism or a "lymphatic constitution" must also be considered. Ewing, who has also studied this relationship, thinks that there is no connection beween the two conditions.

The treatment is largely symptomatic. In no case does any treatment appear to have been of service.

# SURGERY.

UNDER THE CHARGE OF

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**Psychical Disturbances during Acute Osteomyelitis.**—STEIN (*Prager medicinische Wochenschrift*, August 16, 1900) states that out of thirty-one cases (twenty-one males, ten females) of acute osteomyelitis that have come under his observation since 1892, three (two males, one female, all children) were accompanied by psychical disturbances. Similar disturbances of mentality may also follow malaria, acute muscular rheumatism, pneumonia, typhoid fever, or any of the acute infectious fevers. They may appear at any time during the course of the disease, and may be the result of the absorption of toxins or may indicate that the patient is not receiving the proper amount of nourishment. They are pure psychoses, and may take the form either of mania or of melancholia. Case I. Boy, aged sixteen years, who presented all the typical symptoms of acute osteomyelitis of the tibia accompanied by marked delirium. At the beginning of the third week of the disease he was somewhat better, but he soon became very violent, refused all food, tore off his dressings, and passed all his evacuations in bed. He screamed and cried the greater part of the time, and whenever his nurse left his bedside he seemed to be nearly consumed with fear. At no time could he make an intelligent answer to a question. He became fearfully emaciated, but after several relapses he slowly improved. An examination